

Course Title	Obstetrics, Infertility & Reproductive medicine				
Course Code	Vet-404				
Course Type	Required				
Level	Undergraduate				
Year / Semester	Year 4/ Semester 1 (Fall)				
Teacher's Name	Course Lead: Catalina Cabrera Contributor: Stavros Yiannikouris Marios Christoforou				
ECTS	6	Lectures / week	3	Laboratories / week	2
Course Purpose and Objectives	<p>The main objectives of the course are:</p> <ul style="list-style-type: none"> • To build upon the knowledge of reproduction acquired in previous courses and to ensure that students are fully conversant with the endocrinological, physiological, anatomical, and behavioral changes that occur in domestic animals. • To ensure that students will be able to recognize, diagnose and treat the important clinical conditions affecting the reproductive system in the domestic species • To ensure that students can identify and manage the non-infectious and infectious causes of infertility and abortion in domestic species. • To ensure that students have a satisfactory knowledge of the diseases that may affect domestic animals during pregnancy and following the birth. • To ensure that students have a good knowledge of normal birth in the large and small domestic species and common exotics, and that they can use this knowledge in the diagnosis and effective treatment of dystocia • To enable students to evaluate the fertility of groups of animals and to be able to promote high levels of fertility in such groups commensurate with satisfactory production and good welfare practices. 				

Learning Outcomes

The following list provides the learning objectives that will be covered in the lectures, lab practical sessions and tutorials of each week:

Week 1

LOBs covered during lectures:

Equine

1. Stages of the estrous cycle in the mare
2. Examination of the mare for breeding soundness
3. Diseases of the mare's reproductive tract
4. Enlarged ovaries, small ovaries, endometritis, pneumovagina, persistent hymen
5. Ovulation and fertilization
6. Pregnancy diagnosis

Week 2

LOBs covered during lectures:

7. Endocrinology of pregnancy
8. Complications during pregnancy
9. twinning
10. Elective termination of pregnancy
11. Signs of impending parturition
12. Induction of parturition

Week 3

LOBs covered during lectures:

13. Dystocia
14. Cesarean section
15. Post-partum complications
16. Examination of the stallion for breeding soundness
17. Abnormalities of the genital tract
18. Abnormal reproductive behavior in stallions
19. Reproductive management
20. Artificial insemination

Week 4

LOBs covered during lectures:

Canine and Feline

21. Estrous Cycle of the bitch
22. Estrous Cycle of the queen
23. Breeding soundness examination in the bitch
24. Breeding soundness examination in the queen
25. Canine ovulation timing

- 26. Serum hormones interpretation
- 27. Canine breeding management
- 28. Feline breeding management
- 29. Feline breeding management

Week 5

LOBs covered during lectures:

- 30. Semen collection and analysis
- 31. Artificial insemination, vaginal and intrauterine
- 32. Pregnancy diagnosis
- 33. Gestational length and fetal age determination
- 34. Nutrition and exercise in pregnancy
- 35. Vaccination and medications in the pregnant bitch or queen
- 36. Neonatal resuscitation

Week 6

LOBs covered during lectures:

- 37. Normal variations of the canine estrous cycle- delayed puberty, split/silent heat
- 38. Abnormalities of the estrous cycle in the bitch
- 39. Manipulation of the estrous cycle
- 40. Pregnancy termination
- 41. Pregnancy loss
- 42. Canine brucellosis
- 43. Metabolic disorders during the pregnancy of the bitch
- 44. Normal labor
- 45. Dystocia- recognition, categorization, management, and medical therapy
- 46. Cesarean section

Week 7

LOBs covered during lectures:

- 47. Post-partum disorders- inappropriate maternal behavior, eclampsia, endometritis
- 48. Mammary disorders- agalactia, mastitis
- 49. Feline mammary disorders
- 50. Neonatology
- 51. Disorders of the reproductive tract in ovariectomized bitches and queens
- 52. Infertility versus subfertility in the bitch and queen
- 53. Cystic endometrial hyperplasia/pyometra complex
- 54. Acquired male infertility
- 55. Infectious orchitis and epididymitis
- 56. Prostatic disorders in the stud dog

Week 8**LOBs covered during lectures:****Bovine**

- 57. Anatomy of the reproductive system of the cow
- 58. Initiation of puberty in heifers
- 59. Neuroendocrine control of estrus and ovulation
- 60. Inducing parturition or abortion in cattle
- 61. Management to prevent dystocia
- 62. Dystocia fetal and maternal causes
- 63. Obstetric procedures and decision making
- 64. Forced extraction
- 65. Fetotomy
- 66. Cesarean section

Week 9**LOBs covered during lectures:**

- 67. Retained fetal membranes etiology, clinical signs, complications and treatment
- 68. Post-partum uterine infection
- 69. Cystic ovarian follicles
- 70. Post-partum anestrus and its management in dairy cattle
- 71. Fetal disease and abortion-diagnosis and causes
- 72. Infectious agents (revision of Vet -304)
- 73. Non-infectious causes
- 74. Strategies to decrease neonatal calf loss in beef herds
- 75. Management to decrease neonatal loss of dairy heifers
- 76. Bull breeding soundness
- 77. Bovine semen quality control in artificial insemination

Week 10**LOBs covered during lectures:****Small ruminants**

- 78. Anatomy of the Ewe and Doe
- 79. Estrous cycle and gestation of the Ewe and Doe
- 80. Breeding soundness examination of the female
- 81. Breeding management
- 82. Control of estrous cycle
- 83. Increasing twinning rates
- 84. Artificial insemination
- 85. Pregnancy determination
- 86. Antepartum care of the ewe and doe
- 87. Parturition
- 88. Induction of parturition
- 89. Pregnancy termination
- 90. Dystocia management

91. Cesarean section
92. Fetotomy
93. Neonatal care
94. Periparturient disease
95. Retained fetal membranes
96. Metritis and endometritis
97. Pregnancy toxemia
98. Pseudopregnancy
99. Abortion and perinatal death
100. Noninfectious causes of abortion- nutrition related, toxicologic

Week 11

LOBs covered during lectures:

101. Infectious causes of abortion- bacterial, viral, fungal, protozoal
102. Chlamydia abortus
103. Coxiella burnetii (Q fever)
104. Campylobacter spp.
105. Brucellosis
106. Listeriosis, salmonella, leptospira, mycoplasma, anaplasma
107. Toxoplasma
108. Virus induced abortion
109. Breeding soundness examination in the ram and buck
110. Semen collection and evaluation
111. Diseases of the male- testicular and penile abnormalities

Week 12

LOBs covered during lectures:

Porcine

1. Significant anatomy of the reproductive tract
2. Estrus cycle and pregnancy in the pig
3. Pregnancy diagnosis
4. Hormonal control of reproduction
5. Farrowing-parturition
6. Non-infectious abortion
7. Aujeszky's disease
8. Brucellosis
9. Congenital abnormalities
10. Leptospirosis
11. Mycotoxicosis abortion and mutilation
12. Prolapse of the reproductive tract
13. Stillborns and mummification
14. Seasonal infertility
15. Semen analysis

Prerequisites	None	Required	None
Course Content	Canine and feline, Equine, Bovine, Small ruminants, Porcine: <ul style="list-style-type: none"> • Reproductive anatomy • Recognition of pregnancy • Applied endocrinology of pregnancy • Pregnancy diagnosis • Care and management of pregnant animals • Specific and non-specific causes of abortion • Parturition • Dystocia • Post-partum care • Forced extraction • Fetotomy • Cesarean section 		
Teaching Methodology	Lecture based teaching and small group tutorials		
Bibliography	1. <u>Arthur's Veterinary Reproduction and Obstetrics, 8 th, Noaks</u> 2. <u>Pathways To Pregnancy and Parturition, 2nd, Senger</u> 3. <u>Clinical Canine and Feline Reproduction, Kustritz</u> 4. <u>Sheep and Goat medicine, 2 nd, Pugh</u> 5. <u>Pig Health, Carr</u> 6. <u>Bovine reproduction, Hopper</u>		
Assessment	Coursework 30% Final written exam 70%		
Language	English		